What is claimed is:

1. A method of forming a polycrystalline silicon layer, comprising:

forming an amorphous silicon layer on a substrate;

a first step of melting completely the amorphous silicon layer using a laser beam thereby forming the polycrystalline silicon layer by adopting a mask; and

a second step of melting an upper portion the polycrystalline silicon layer using the laser beam by adopting the mask thereby recrystallizing the upper portion of the polycrystalline silicon layer.

2. The method of claim 1, wherein the mask has a completely melting region and a partially melting region.

3. The method of claim 2, wherein the completely melting region and the partially melting region have stripe shapes.

4. The method of claim 3, wherein the completely melting region and the partially melting region are postioned in series.

5. The method of claim 2, wherein the completely melting region of the mask pattern is made of a material having a high light transmittance, and the partially melting region of the mask pattern is made of a material having a low light transmittance.

6. The method of claim 1, wherein the first and second steps are proceeded through one scanning process of moving the substrate having the amorphous silicon layer under the laser beam.